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# The Tech.

VOL. II.

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No. 2.

## THE TECH.

Published on alternate Wednesdays, during the school year, by the students of the Massachusetts Institute of Technology.

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THE first month of work is completed, and the regular order prevails in all the departments. The new arrangements are about perfected, and the students have become accustomed to the changes necessitated by the increase of numbers. It would seem a fitting time to compare the prospects of the Institute for the present year with the records of the years preceding. In such a comparison, abundant cause for satisfaction may be found by the government and all friends of the institution.

The growing popularity of its practical methods of instruction, and the increasing demand for young men who have received a thorough training for the scientific professions, are unmistakably shown by the increasing numbers in the entering classes for successive years, and the facility with which our graduates obtain responsible and remunerative positions.

The vigorous action of the authorities this year in erecting new buildings, establishing new courses, and engaging new and competent instructors, is greatly to be commended. The old buildings have proved inadequate to meet

the requirements of the increased number of students; and the government, by the disposal of the land in Trinity Square, is enabled to begin the erection of a commodious building on the site of the old gymnasium. The plan includes the erection and equipment of a new gymnasium, and, it is to be hoped, better accommodations for shop work, as the present shops are greatly overcrowded.

The most important departure in the line of new courses is the establishment of a regular course in electrical engineering, of which we shall give full account in these columns hereafter. Many changes and improvements have been introduced in other courses which, with the aid of the new instructors, will prove greatly to the advantage of the students.

The total number of students at present in the Institute is 393, divided as follows: Regular students, fourth year, 22; third year, 30; second year, 64; first year, 119; special students, 105; school of mechanic arts, 53. The students of the last three years are divided in courses as follows: Course of civil engineering, 25; mechanical engineering, 37; mining, 24; architecture, 5; chemistry, 20; other courses, 5.

WE regret to draw the conclusion, although it is doubtless true, that a large body of students cannot be free from authority long before a few among them commit some thoughtless action which brings discredit upon their Alma Mater. We are aware of the tendency of the press to exaggerate such disturbances: a song current at Amherst states that an unfortunate Sophomore was arrested for throwing a bean, and doubtless the local papers properly condemned student, college, and Faculty. Since, however, we cannot remedy this tendency to condemn, we should be even more mindful of

our conduct when the action of one can provoke a rebuke so general.

The means employed by a few of the students to clear the Institute steps of the heterogeneous crowd which gathered there at the time of President Arthur's visit gave to the reporters an opportunity, of course improved to the utmost, of chronicling what is known in their inflated diction as a "student outrage." In principle, however, the students were not at fault. They certainly had a right to the steps; and as about three hundred of them had tried in vain for a place elsewhere, it would seem that the "ladies and gentlemen" would have yielded their positions after having been repeatedly and politely requested to do so. They did not, however, so a few of the more thoughtless of the students threw several cupfuls of water upon them from an upper window, while others slowly forced the crowd from off the topmost steps. This at its worst was only the action of a few, and although worthy of censure, should not reflect upon all. We trust that hereafter the offenders will confine themselves to more gentlemanly methods of expostulation, and not again endeavor to emulate Old Probabilities in the distribution of "local rains."

IT is with great pleasure that we can record the opening of a new reading-room and library. The want has long been felt that there should be some place on the upper floors where students could study, and not be disturbed as they usually are in their drawing-rooms.

Room 22, the former first-year drawing-room, has been cleared of desks, a new floor laid, eight large tables put in, and the door into the side passageway reopened. This room is intended especially for the civil and mechanical engineers, though of course it is open to the other departments as well.

Close by the entrance and in front of the model-room a space has been partitioned off, and upward of a hundred hooks put up, for the reception of hats and coats. By this arrange-

ment the old coat-room on the main floor will be much less crowded, and will be used mostly by Freshmen and those specials who have no regular department rooms.

The library on the first floor will still be open to students, and there, as last year, the exchanges of THE TECH will be placed. Now that there will be so many more periodicals than formerly, and at the same time an increase in the number of persons using the room, it is hoped that each one will take a pride in the appearance of the tables, and return all exchanges to their proper places.

THE old "Gym," whose architectural beauty has for so many years marked the corner of Boylston and Clarendon Streets, has at last disappeared, and soon the walls of another building will be seen rising in its place. The Institute has long greatly felt the need of a well-equipped gymnasium; and as we looked for the last time upon that peculiar combination of drill-shed, lunch-room, ward-room, and gymnasium, we could not but congratulate ourselves upon the promising outlook for a new and better building. And now that one is in the process of construction, we will let it speak for itself, and make upon it but few comments.

The site of the new building is on Exeter Street, with its entrance lying directly opposite St. James Avenue. The ground dimensions are the same as the old gymnasium, 150 x 50 feet.

The walls, which are of brick, are seven or eight inches lower than those of the other building. The same old timbers, roof, floor, and apparatus are to be put in, while the heating, sanitary, and lighting *conveniences* will probably not materially differ. Why the building was not made higher instead of lower than the old one, and why the contract for building was not given before September last, are mysteries that yet await explanation.

The result, as concerns our sports, is obvious. No gymnasium for three weeks yet, and tennis, pole vaulting, and other sports depending upon a building of respectable height barred out. No

small loss to an athletic club whose sports, at the best, are necessarily so handicapped.

But a slight increase in the expenditure would have made the new building much superior to the old, whereas, as now planned, it will prove inferior; and it would seem that either a spirit of entirely uncalled for economy or a serious disregard of the value and the requirements of athletic exercises has prompted the erection of so unsatisfactory a building.

As now being put up, the building will cost between \$4,000 and \$5,000.

THE Freshman editor on THE TECH has not yet been appointed, and men in the class desiring the position should begin to contribute without delay, as by contributed articles only can the directors judge of the writers' editorial ability. Contributors should remember that THE TECH pays attention only to those articles which are written on one side of the paper and accompanied by the name of the writer. Articles in competition for the prizes offered subscribers should not be of excessive length. Good humorous poetry and articles in a light vein will be especially acceptable. In order to raise the standard of our illustrations, we must insist on certain requirements. All cartoons submitted should be of merit, both in design and execution. The lines should be distinct, and drawn in black ink, either Higgins's or india ink, and no wash be used. The width of cartoons must be from two and a half to three inches for the single column, or from four and a half to six inches for a full-page cartoon. Those intended for photographic reduction may be one half larger than the sizes given.

THE editors regret that the heliotype of Dr. Walker, given in the present issue, is not entirely satisfactory. The only available method of procuring the portrait was by photographic reduction from a large painting, and in the process the effectiveness of the picture has suffered somewhat.

## Contributions.

WILLIAM JOHNSON WALKER was born in Charlestown, Mass., in the year 1790. He graduated at Harvard University in 1810, and for some years pursued his studies in medicine, under the guidance of Gov. Brooks of Medford. In order to better qualify himself for his profession, he continued his work at the best schools in France and Germany, spending much time at Leipzig, and was a surgeon in the French service at the battle of Waterloo. After returning home, he practised for many years in Boston and vicinity. As a physician and surgeon, Dr. Walker ranked among the very first; and no medical man of his day enjoyed a higher reputation. He was especially remarkable for his insight into the nature and causes of disease, his power of diagnosis being often compared to that of the celebrated English physician Radcliffe.

In 1845, after a long and successful professional career, Dr. Walker gave up his practice, to the great regret of the many who had benefited by his skill, and devoted himself entirely to business.

At the time of his death, which took place after a severe illness, in April, 1865, he had amassed a fortune of a million and a quarter of dollars.

Of the many generous donors to the Institute of Technology, Dr. Walker is entitled to be regarded as the most prominent. His first gift of \$75,000, during his lifetime, was at a critical period in the early history of the Institute. As is well known, the grant by the Commonwealth of the land on which the buildings are now located was on condition that not less than \$100,000 should be raised by subscription within one year. This condition not having been fully complied with, the legislature extended the time for another year. When this had nearly expired, only about \$40,000 had been subscribed. It was then that an appeal was made to Dr. Walker, then a resident of Newport, R. I., by a circular of the Finance Committee. Soon

after, at his invitation, a member of the committee visited him, and explained the design of the Institute and its proposed methods of instruction; and this visit was immediately followed by a gift of \$75,000, which, added to the \$40,000 previously contributed by other generous friends, fulfilled the legislative conditions of the land grant; and the site of the building was then secured and the establishment of the Institute became an assured fact.

By his will, Dr. Walker made the further and still more generous donation of \$250,000. Prior to his first gift, in his interview with the members of the committee, he expressed his opinion that the teaching of mathematics should hold a prominent place in the Institute, and that the requirements for admission should be such as to make it possible for sons of the common classes in society to avail themselves of the advantages of the Institute in that special department of education.

It is well known that Dr. Walker was also a most liberal patron of other educational institutions. By his will he left \$250,000 each to Tufts and Amherst Colleges and the Boston Society of Natural History, having previously given to the latter the dwelling-house on Bulfinch Street, Boston, in which he had formerly resided. Such extraordinary liberality naturally awakens a desire to know something of the characteristics of one who was prompted to confer enduring benefits on posterity. Like other men of great decision of character, Dr. Walker possessed a strong will. Once having framed his opinions, he held them with great tenacity, and was sometimes impatient of any opposition. To those who ventured openly to thwart his purposes, he not infrequently presented the severer aspects of his disposition; but to those who sought and appreciated his opinions, and especially those who trusted to his professional skill, he was a firm and genial friend and gave them in return his full confidence.

The foundation of his large fortune was laid by patient and arduous devotion to his profes-

sion and great economy in his mode of living, and it was subsequently increased by careful and sagacious investments in real estate and railway securities. To these he gave his undivided attention for several years previous to his death, having entirely abandoned the practice of medicine and surgery. As soon as he decided on this course, he refused to prescribe even for his best friends and former patients, playfully remarking "that he never did know much of medicine"; evidently implying that to continue to be successful in medical practice one's mind should be concentrated upon it. Although ambitious of pecuniary success and accumulation, his professional charges were unusually moderate, even in the case of the wealthiest of his patients.

The friends and patrons of the Institute of Technology may, with peculiar reason, recognize its obligations to Dr. Walker as one of its greatest benefactors, and ever gratefully cherish his memory.

#### The Memorial Meeting.

THE first meeting of the season of the Society of Arts was held in the Institute building, Thursday evening, Oct. 12, as a memorial meeting, it being deemed fitting by the society to formally recognize on this occasion the loss of its honored and beloved founder, Prof. William B. Rogers.

The attendance was large, and deeply interested in the tributes of love and admiration paid to his memory by the several speakers.

President Walker, with a few introductory words, presented Prof. William P. Atkinson, who, in behalf of the committee, moved the passage of the following resolutions:—

*Resolved*, That by the death of Prof. Rogers the country lost a man whose rare abilities, and whose single hearted devotion through a long life to the pursuit of scientific truth, place his name on that short list of American men of science who have distinctly raised the credit of the American nation in the eyes of the scientific world.

*Resolved*, That to him, more than any other man the founder and organizer of the Massachusetts Institute of Technology, the State and the city owe a deep debt of gratitude for the accomplishment of a most difficult task,

the successful establishment of a new institution of learning to meet a new and pressing educational want in the community; and that we who have been associated with him, or who, as members of the society, have had the opportunity of knowing the difficulties with which the enterprise was surrounded, desire to put on record our appreciation of his patience, his courage, his sagacity, his comprehensive and far-reaching views of the true aim and purpose of the institution; of the earnestness and self-sacrifice with which he devoted himself to the work, and the generosity with which he gave his time, his means, his thoughts, and finally his life, to its successful accomplishment.

*Resolved*, That through his long career as a teacher, President Rogers, by his varied gifts, his accurate and extensive knowledge, and his admirably trained power of scientific exposition, exhibited in the highest degree those qualities which give success and add lustre to a profession in which, of all others this country needs, if it is to reach its true rank in the intellectual world, such gifts and such devotion as he exhibited.

*Resolved*, That in his death this society has lost not only a respected presiding officer, but a man who, through the simplicity as well as the dignity of his character, through his constant courtesy and his unaffected kindness of heart, has endeared himself to all of us who had the happiness of his acquaintance, as an honored and beloved personal friend.

Mr. James P. Tolman, president of the alumni, seconded the resolutions in a short address, paying a touching tribute to President Rogers as he appeared in his relations with the students, and portraying the almost idolatrous affection and admiration felt for him by all who came within the sphere of his warm-hearted and vigorous personality.

Prof. Charles R. Cross read an account of President Rogers's labors as a physicist, giving all praise to his enthusiasm in the pursuit of the science, his great power in tracing the causes and interpreting the results of his experiments, and the wonderful clearness of his exposition of physical subjects to his classes.

President Walker then presented Prof. John D. Runkle as the co-laborer and successor of President Rogers, and one "who under the roof of this institution needed no introduction."

Prof. Runkle's address gave in detail President Rogers's connection with the Institute of Technology, from its conception, through the unsuccessful attempts to obtain legislation in

its behalf and the many discouragements of the early period, to its finally assured success, and the supreme moment when his last words were spoken upon the platform of the institution which was the outcome of his devoted purpose and untiring energy.

President Walker next introduced a companion of President Rogers in his earlier years and his friend throughout life, Major Jed Hodgkiss of Virginia.

Major Hodgkiss vividly described the family and surroundings of the late president during his youth; his inborn love of science and her methods which he richly inherited from his father; his first meeting with Thomas Jefferson, and the determination first instilled into his heart by that great man to become a worthy successor to his father. The beginning of his geological study and the first survey of Virginia were dwelt upon, and also his marvellous insight into geologic formation and arrangement of strata; his simple methods of naming and distinguishing the rocks of different periods; his almost perfect "sections," none better to be found to-day; and his expectant look into the future, which he prophesied would see great mining and manufacturing industries in the valleys which were then still covered with the virgin forest. Incidents were related of his geological rambles and his instruction of the country people. A humorous account of his colored servant, Levi, who accompanied him on all occasions and explained geological phenomena after his own peculiar fashion.

The wonderful eloquence and enthusiasm which filled his lecture-rooms to overflowing were feelingly described by Major Hodgkiss, and as well the admiration felt by all geologists for the great work he did for American geology; so that when the present survey of the Appalachian Mountain system is completed, and it is ascertained without doubt which peak overtops all its fellows of the great chain, that summit will, with the concurrence of all geologists, be called Mount Rogers.

## A Query.

IN looking over the editorial of the last issue of THE TECH, one question which naturally presents itself is, should not the Institute own and rent dormitories to its students?

In considering this question let us look candidly at the objections which probably would be presented by the Institute and others. It is likely that the strongest objection to furnishing dormitories would be the expense of building or procuring sufficient accommodations. Would it not be money well invested? Would not the rent paid by the students afford good interest on the money invested? Is it to be supposed that other institutions in the country furnish rooms simply for the accommodation of the pupils, and do not expect to gain enough from them, not only to cover the interest of money expended, but in time to repay the capital? More than this, would not the number of students be increased? Perhaps it is not generally known with how much difficulty students can find suitable rooms at reasonable prices and at a convenient distance from the Institute. The difficulty exists, and has more or less weight with persons wishing to come to the Institute. Should this be a hindrance? Would it not be an advantage to the Institute to put it aside? The falling off of students cannot be claimed as a reason for doing nothing in this matter. On the other hand, the Institute seems to be increasing in favor and its numbers swelling year by year.

Another objection to students rooming in dormitories is, that it tends to detract the pupils from their work and to give greater opportunities for hazing. How do facts show in regard to this? Do not the colleges that have dormitories maintain as good a standing as those that have not? The matter of hazing need not be taken into account in an institution where there is so little class feeling and so much mutual confidence as there is here.

Let us look for a minute at the advantages aside from those mentioned at the beginning. The aim in founding our school paper was stated

to be "to afford a means of more general intercourse among the students." The lack of intercourse arises from the lack of dormitory life. Is this not true to a certain extent? Would it not be not only pleasanter but more profitable if the members of the same class at least could come in contact with and know each other? May we not hope that the "intercourse" among the students may be, at a time not far in the future, *inter se*, and not alone by means of the printed column.

H. '86.

DEER MR. EDITOR: We were all mutch interested in the TECH's little peice to us last week. Most of us can reed, but those who cannot, got somebody to reed to them. Their were a few words which we didn't know what they meant, because we have not come to them yet in Grammar, But we liked it ever so mutch. In the grammar class we are Studdying the nineteenth century. we suppose that, as the school has been going nineteen years, each class has a century. They had just Enough centuries to go round — did n't they? what will the next fresh-Men do, because their isn't any more centuries? But no matter, perhaps sumbody will invent one before they nead it. We don't think that the nineteenth century is harf as mutch fun as latin for in that We lerned that Scipio was the first man who shaved (P. S. we dont Shave yet.) and that Hephaestus fell off the roof of the heavens And when he struck on the earth it made him lame. We here that last year a fresh-Man asked for a peace of "indignation tubing" in the labrotory and every body laughed. We don't see what maid them laugh any more than we see why they laughed when one of us asked the man in the drawing labra'ory for a peace of vanilla paper, but they All did laugh and real hard too. one day one of our fellows was puting a notice up on a door about a pen, some style of graphic pen I think, and a senior came along and told him there was a bully tin board down stairs for such things and when the fellow went down, there wasn't any tin board there at all, but just a common wooden one



with a glass over it. Wasn't the senior meen to fool him? We are mutch obliged to the tech for its kind offer of protection. we are small now, but we will grow and may sometime be president of the united states or a special architect or something of that sort.

Please excuse mistakeks,

Yours confidingly

THE FRESH-MEN.

## Athletics.

THE first foot-ball game of the season was played with the Harvard eleven on Jarvis Field, Wednesday afternoon, Oct. 11. The game had been arranged with Harvard as a practice game, and it is only fair to both teams to say that previous practice had been very slight, and that both were weakened by the temporary loss, through the slight injuries of one or two of their best men, the quarter-back on each side being substitutes.

In the first half the Harvards, after a severe struggle, succeeded in making a touch-down, from which a goal was kicked. In the second innings another touch-down was scored by Harvard, the score of M. I. T. being filled only with safety touch-downs. The game was interesting principally as giving opportunity for judging the relative merits of the players without practice, and as some criterion of the strength of the Harvard eleven.

Nearly all members of the Institute present in the audience expressed themselves as well pleased with the playing of our men, the good play of the captain and half back being especially applauded. The full back made a number of bad plays, which were excusable under the circumstances, but would be so under no others. The play of the rush line was strong, though most of the work was done by individual members; and the general discipline of the eleven was good.

It would seem that there is sufficient material for a superior team, and continued practice only

is required to put it on a par with the elevens of other colleges.

Referee for the game, Goodwin; Umpires, Mason for Harvard; Bennett for M. I. T.

Our foot-ball eleven has accepted the invitation to play Yale at New Haven, Nov. 4. Yale pays the expenses of the visit.

At the inter-collegiate foot-ball convention held in New York, it was decided that after next year no player shall continue on a team more than five years.

The H. A. A. holds its fall meeting, Oct. 28, at 2 P. M., on Jarvis Field, when the following events will be contested: 100-yards run (open to all below 11 s.); 220-yards run; quarter-mile run (open to all below 56 s.); half-mile run (open to all below 2 m. 10 s.); one-mile run (all below 5 m.); one-mile walk; running high and running broad jumps; throwing the hammer (all below 70 ft.); putting the shot (all below 30 ft.); pole vaulting; 120-yards hurdle race; 100-yards run; and 220-yards run (open to foot ball members only).

CHALLENGE. — The members of the Mechanical Engineering Department hereby challenge the members of the Mining Engineering Department to play a match game of base-ball.

Game to be played by representative nines; time and place to be hereafter decided. The M. E. committee of three request a meeting with a similar committee from the Mining Department to arrange the preliminaries for such game.

For the committee,

H. S. CHASE, *Secy.*

A MASS meeting of the students has been called for Friday, Oct. 27, at 4.30 P. M., to consider the subject of a suitable memorial of the late President Rogers, to be placed in Huntington Hall. The new gymnasium is also to be discussed. All students are invited to attend.

### Department Notes.

SOME of the fourth-year miners and chemists have begun on their "proof analysis." The element in question this year is lead.

Monday Richards and Capen finished their work in the mining laboratory, and Tenney and Willcutt began theirs on Calumet sand and smelt, for gold and silver respectively.

The sheet of dormers and wrought-iron work were handed in last Saturday, and the next problem will be one in designing.

The senior architects in *méchanics* have been assigned the strength of framing-joints as their special work on the testing machine.

The annual meeting of the A. A. M. I. T. was held in its new room in the M. F. A. on Wednesday the 18th. After the reading of the secretary's and treasurer's reports, and that of the Committee on the "Sketch Book," the new constitution was read, and after a few amendments it was decided to adopt the new one in place of the former. Then followed the election of officers for the ensuing year. Mr. Arthur Rotch was chosen president; Alden, secretary; Hartwell, treasurer. After a discussion on the best way of publishing the new "Sketch Book" the meeting adjourned.

Cornell has graduated forty-four students in mechanical engineering since 1869, when that department was established at the university. There were no graduates from this course last year.

The Pennsylvania Railroad has recently made successful experiments on lighting cars by electricity, using secondary storage batteries under the floor of the cars; thirty cells of battery furnishing current enough to supply six Edison lamps for seventeen hours.

The first meeting of the *Σ. M. E.* Society this year was held on Monday of last week. G. H. Bryant was elected president; F. E. Davis, vice-president; H. P. Barr, secretary and treasurer. A committee was appointed to arrange a suitable time for the meetings during the coming

year. This society was organized last year, and has been very successful. Much valuable information has been gained from papers and discussions, and the vacation excursion indulged in by the society will be long remembered as a very enjoyable affair. It is hoped that this year, with a larger membership, increased interest will be taken in the meetings, and the society be made a source of even greater pleasure and profit than last year. The next meeting will be held on Tuesday, Oct. 31, at 12 o'clock. Subject for discussion, "Is a one story cotton or woollen mill better than one of two stories or more?"

Vertical rolls for bending boiler plate were first used at the Jarrow Works in England. As the size of the plates increased, great difficulties were found in supporting them in the ordinary bending rolls, and the plan of vertical rolls was suggested, enabling the plates to rest on their edges on the ground during the whole operation. In the boiler shop at Jarrow may be seen boilers sixteen and a half feet in diameter and twenty feet long. They are made wholly of steel, each ring consisting of only three plates. When finished, two of them will furnish steam for 3,000 indicated horse-power, and will weigh eighty tons each.

The attention of mechanicals is called to the differential high-pressure air engine, a specimen of which was exhibited last year at the Mechanics' Institute Fair. Since then improvements have been made, and the machine is now a thoroughly practical affair, which does its work promptly and regularly, and with economy equal to, if not greater than, that attained by the best steam engines. In the *Boston Journal of Commerce* for July 29 may be seen a series of indicator diagrams taken from a ten-horse engine with two cylinders six and a quarter inches in diameter and fourteen inches stroke, running at one hundred revolutions per minute, and at pressures ranging from one to six atmospheres. It is said that before Jan. 1, 1883, engines will be in the market varying from ten to sixty horse power.

The *Lancet* reports that M. Tarnier, a French physician, has invented an incubator for infants. It consists of a box, well padded on the inside and provided with heating pipes and a sliding glass cover, wherein the infant is kept for a period varying from two days to six weeks, its vitality being greatly improved by the process. If this is true, it opens possibilities of startling magnitude. We have already seen chickens hatched by steam on a grand scale; and who can deny that in the future, mammoth establishments for bringing up children by steam, and eke by electricity, shall spring up and cover the land? The "Pip" of the future will not enjoy the felicity of being "brought up by hand"; Mrs. Gargery will place him in the care of the Consolidated High Speed Steam Incubator Company, and receive a brass check, redeemable on demand, like a pawn ticket. The immense advantages of this plan, in relieving parents of all anxiety regarding their offspring, will be apparent to all.

In the *Scientific American* of Oct. 14 is an account of a new type of fireless steam locomotives, a number of which are being made at the Hohenzollern Locomotive Works, Düsseldorf, for use in Java. The idea of a locomotive without fire originated with Dr. Lamm of New Orleans, and the first engine on this principle was started in 1874, since which time the system has been introduced in France by M. Lion Francq. On an experimental railway at Düsseldorf, a series of comparative trials is in progress between fireless and ordinary locomotives, which has developed many points of superiority in favor of the new type. Instead of a boiler and fire box, these engines have a cylindrical hot-water reservoir, with a steam dome and bulged ends, which is charged up to a very high pressure from a stationary boiler, the steam entering through a perforated pipe at the bottom of the water. The reservoir is carefully protected against loss of heat by radiation, and the loss of pressure due to cooling varies from three and a half to seven pounds per hour. Steam is taken from the dome

through a reducing valve which lowers the pressure to one hundred pounds per square inch, and the power stored in the hot water can be used as conditions require, — a very important advantage where steep grades are encountered. Another advantage is entire freedom from flying sparks, cinders, and smoke; the engines and cars remain longer clean, and as there is very little wear and tear of the steam reservoirs, the cost of boiler repairs, as well as the danger of explosions, is greatly reduced. By means of a first-class plant of stationary boilers, steam can be made at a large saving of labor and fuel. The fireless locomotive also weighs less than the ordinary locomotive, and requires but one engine driver. It is thought that a similar fireless arrangement would be admirable for small river steamers which run but a short distance.

#### Society of Arts.

A SPECIAL meeting of the Society of Arts at the Institute, on Thursday the 19th. Prof. Eadweard Muybridge of San Francisco gave a very interesting account of the photography of animals in motion. The illustrations were thrown upon the screen by means of an oxyhydrogen lamp, and also by the zoopraxiscope, an instrument similar to the zoetrope. Views were given of the horse, trotting, walking, running, and jumping; the dog, bull, deer, and man in various motions. He also showed pictures by Meissonnier, Gerôme, Wagner, Bonheur, etc., and pointed out the various mistakes in the attitudes of the animals. Meissonnier has taken great interest in the photographs of Mr. Muybridge, and hereafter will paint animals in motion as they really are, not as they seem to be, although there may not be so much grace in the correct pictures.

GENERAL FRANCIS A. WALKER made the opening address at the annual convention of the Delta Kappa Epsilon Fraternity, meeting with Upsilon Chapter, Brown University on the 18th and 19th inst.

## Alumni Column.

[This department can be made complete only by continued contributions of items of general interest in connection with the lives and occupations of alumni, graduates, and former members of the Institute. We invite the co-operation of each alumnus, and ask for full and frequent contributions to the column.]

'70. Russell H. Curtis, who was admitted to the bar in 1878, has removed from Rock Island, Ill., to Chicago, to take a position in the Chicago and Western Indiana Railroad. His address is 94 Washington Street, Chicago, Ill.

'71. Walter W. Smith is with the firm of Smith, Vaile & Co., Dayton, O. They are builders of steam pumps and of hydraulic machinery.

'75. Mr. Wilfred Lewis has the position of mechanical engineer with Wm. Sellers & Co., Philadelphia.

'79. Mr. Wm. H. Pickering, assistant in the physical laboratory, is on his way home from Europe, where he has been spending the summer. He is expected back next week.

'79. Ernest G. Hartwell, draughtsman with Hook & Hastings, organ builders, has just been re-elected treasurer of the architectural association of M. I. T.

'81. C. M. Wilkes has a position as assistant engineer in the sewerage department of this city.

'82. Miss Carrie L. Rice is teaching chemistry, mathematics, and physical geography in the Denver High School.

'82. H. F. Manning is with Geo. H. Barrus, expert steam engineer, Boston.

'82. Miss Clara P. Ames is assistant in chemistry in the woman's laboratory, M. I. T.

'82. Anthony C. White is assistant electrician of the New England Weston Electric Light Company, Boston.

'82. Charles D. Jenkins is assistant State inspector of gas for Massachusetts.

'82. Wm. T. Ripley is with Ripley Bros., wholesale marble dealers, Rutland, Vt.

'83. R. Tilden Gibbons, formerly of '83, is corresponding secretary of the First National Bank, Detroit, Mich.

'83. Mr. Herbert Jacques, a former special student in architecture, and now in Mr. Richardson's office in Brookline, has lately returned from Europe, where he has been studying with Mr. Richardson.

'84. Rutherford P. Hayes, who studied civil engineering here last year, is now in a bank in Fremont, O.

## Locals.

WHERE are the Sigma Chi's this year?

A notice on the bulletin board announces that a freshman has lost "a L'eau."

A dining club has been formed among the Institute men.

Prof. Luquien has his recitations in the old architectural library.

"The Junior Civils will take the 1.40 train for Brookline."

The Freshman lectures in chemistry are given in Room 4.

Smith, '83, has changed from V. B. to V. C.

A new weekly paper called *Cheek* has been issued. Hadley is to get complimentary copies.

The favorite instrument among the Civils this year is the O'Grady level.

At a class-meeting of '86, held on the 17th, it was decided not to allow Specials to hold offices.

If the managers of the new building do not show more activity than the men now at work on the cellar, no student need flatter himself that he will live to see it completed.

A survey of the lot upon which the new gymnasium is being built has just been made by the Civils.

Prof. Whitaker has had a "dark room" fitted up, and a new water tank added in the Mechanical drawing-room, and is now prepared to take blue copies on a grand scale.

We hear that Herpich, '85, has been admitted to the Cincinnati University this year as a Freshman.

Last week we received a visit from Profs. Lincoln and Gage of the English High School of this city.

There were many cries of relief in the basement when the stamps stopped last Thursday, especially in the weighing room.

'84 Civils have voted to organize a society, and a committee has been appointed to draw up a constitution.



A new stock of laboratory supplies arrived last Friday, among them a petroleum muffle.

It is a credit to the third-year Civils that not a man has been absent at the roll-call preceding each afternoon lecture.

A third-year chemist lately found a large rock on the Back Bay which, upon breaking, was found to be a rich specimen of galena.

The second meeting of the 2 G was held last Tuesday, at which Mr. Hardon, '84, and Mr. Neumann, '84, initiated.

Messrs. Gustin and Tompkins '83 have finished their two weeks' work on the testing machine and Messrs. Mansfield and Tenney have just begun theirs.

Mr. Geo. T. Jarvis of '84 is at Renova, Penn., engaged in drafting; he writes that he has been offered the superintendency of a Mexican railroad, but is in doubt as to whether he will accept or not!

Those students who availed themselves of the opportunity to attend the lecture of Mr. Muybridge on "The Movement of Men and Animals," delivered before the Society of Arts last Friday evening, were well repaid.

At the recent meeting of the class of '84, held Oct. 16th, the following officers were elected for the ensuing year: president, H. W. Tyler; secretary and treasurer, A. Lawrence Rotch; gymnasium committee, Messrs. Haines and Bunce.

We know of no professed followers of æstheticism at the Institute, but we think the graceful exit of a certain Junior from English the other day would have called forth approbation from Oscar himself.

This is the way the engineer explained the Lawrence engine governor: "When the fat side of the big eccentric is opposite the fat side of the little eccentric, she slows up; but when the two fat sides pull together, she pegs away at full stroke."

The third-year Civils, under the direction of a senior, are making the preliminary survey for a bridge across the Neponset River. The work as yet has been comparatively easy.

The Civil department comprises thirty-three students, and has two large and comfortable drawing-rooms, while the Mechanicals, numbering fifty-seven, are crowded into a single room. In the name of the immortal Artemas, "Why is this thus?"

The senior Mechanicals do not run the New England Fair, as many have supposed. They merely go up to advise the managers and lend tone to the proceedings. At their last visit they "shew" how to take indicator diagrams from the Porter-Allen engine.

This year, contrary to the usual custom, the theses of the Civils are to be entirely original. Hitherto, instead of being of an original nature, the greater number have been reviews of works already built.

The *American Machinist* advocates "slow speed and coarse feed." This is very good from a hygienic point of view; but a majority of the Institute men seem to prefer "high speed and fine feed." Hence the crowd at 46 Cortes Street.

One of the daily papers states that "the heartiest cheer which President Arthur received in Boston was that given by the students of the Institute of Technology."

'85 Civils do not like to be disturbed so often in their drawing-room by the second-year Mechanicals.

Prof. Atkinson has resigned first-year English to an assistant, and devotes himself entirely to the Sophs and Juniors.

The new course in electricity seems to be quite popular: five of '85 are taking it, and many of the higher classes have tried, but as yet without success, to branch off into it.

At a recent meeting of the Seniors, H. B. Gale was elected president, Underwood vice-president, and H. S. Chase, secretary.

The new laboratory, now being made where Prof. Nichols's lecture room formerly was, is for the second-year qualitative and quantitative analysis. This will get rid of the change at the semi's, when second-year men leave the Freshman and go to the third-year laboratory.

A daily paper announces that the average human body contains some eighty dollars' worth of phosphorus, and profoundly remarks that if there were no silly law against homicide the tight-trowsered, cigarette smoking young sprouts loafing around corners might be utilized.

One more of the foot-ball eleven has been laid up. Pratt, '85, hurt his knee quite badly when our men played with Harvard, two weeks ago, and is now seen going about on crutches.

At the recent Freshman-class meeting certain members of the Junior and Senior classes so far forgot themselves as to create a disturbance by their uncalled-for presence. The Freshmen, instead of summarily ejecting them, as they might easily have done, passed a resolution requesting their withdrawal, which, we are glad to say, was immediately complied with. This is a matter that should be frowned down, and the Freshmen deserve the approbation of all for their gentlemanly conduct.

'86 had a special meeting last Wednesday for the purpose of organizing a class foot-ball team. A committee of three, L. Houghton, Windsor, and Bennett, was chosen to select an eleven, subject to change by the captain. The committee was also authorized to purchase a ball. It was voted to have, as manager, a man who did not play on the team, and E. L. Pierce was chosen for that position.

There is good stock in the class to chose an eleven from, and '86 ought to have a strong team. A challenge from the Phillips Andover Academy team has been received and accepted. The game will be played at Andover.

A fact probably but little known is that the United States nickel five-cent piece furnishes a key to metric measure and weights. The coin is two centimetres in diameter and its weight is five grams. Five of them placed in a row will give the length of a decimetre, and two of them will weigh a decagram.

A town-crier — The poorhouse baby.

A swell dinner — Dried apples and water.

## Science Notes.

THE present undeveloped state of electrical science and the great number of workers in the field make the advances in this direction particularly numerous and noticeable. The indefatigable Edison has, within a few weeks, taken out over thirty patents relating to his system of lighting; and at the electrical exhibition recently opened in Munich, as well as at the Institute fair in this city, his lamps are a prominent feature. Several manufacturers of powder have used his light in their mills with great success. Another inventor has appeared with a lamp which replaces the carbon by silicon and does away with the vacuum — The danger of professional divers has been lessened, while their efficiency has been proportionally increased, by a modification of the telephone, which is attached to the diver's helmet, and enables him to converse freely with the occupants of the wrecking-steamer. — Messrs. Hautefeuille and Chappuis have succeeded in liquefying ozone, and obtained, as the result of their experiment, a deep indigo-blue liquid. — Baron Nordenskjöld contemplates another Arctic expedition, and hopes to start next summer. The scientific results of the ill-fated "Jeannette" expedition would have been numerous had the ship returned to port. Over 2,000 observations on auroræ and magnetism were lost, together with large collections of birds and deep-sea fauna. Dr. Ambler also made and lost a large collection of fossils and opals. Three new islands were discovered and their location made known to us, and numerous observations on the fauna and flora of the new Siberian Islands remain. — The announcement comes from Nevada of the discovery of fossil footprints in sandstone which are, to all appearance, those of a human being wearing sandals. The history of the Cardiff Giant will throw considerable discredit on the announcement. — Tasmania and New Zealand have each to answer for a monstrosity. The first has produced an iron man which walks and pushes a cart. The motive power is a spiral spring coiled up inside the body. New Zealand was the scene of capture of a cuttle-fish which almost realizes the horrible monster of Victor Hugo's imagination. The arms were 25 ft in length, the body  $7\frac{1}{2}$ , while the eyes went by the traditional saucers and were as big as breakfast plates. — A curious fact for the prohibitionists is found in the statistics which prove that drunkenness is increasing in France in proportion as wine ceases to be the national drink. It is possible that these same reformers may have reason to deplore the recent discovery of an acid which dissolves with difficulty in water, but whose alcoholic solution is from twenty to thirty times sweeter than sugar. Should it prove wholesome, we may find our sugar-bowl displaced by a decanter; bread and molasses may become wildly intoxicating, and the cup that cheers but not inebriates will have to be drunk plain, or else become a legend of our grandmothers.

## Exchanges.

THE action of Harvard regarding last summer's Harvard-Columbia race seems to have dispelled the kindly feeling which has for a long time existed between the two colleges, and to have brought not a little discredit upon the former. From the facts of the case as we have them, it seems, however, that the Cambridge crew, though undoubtedly in the wrong, acted under an unfortunate mistake, and hardly deserve the censure which has been heaped upon them. The race, as will be remembered, was to have taken place on June 24, but on account of the sad drowning of Columbia's coxswain was delayed until July 3. As at first arranged, it was to be rowed on a "fair ebb tide," although there was no written agreement to that effect. Harvard claimed the right to name the hour, and declined to row on July 3 unless within a half-hour after flood. The two crews were then unable to agree upon an hour, and the Harvard coach, supposing there would be no race, told his crew to go out of training, and to start for home when they pleased. They did so; and the morning of July 3 found Columbia alone in New London. On that day, at the hour fixed for the first race, Columbia rowed over the course alone, and the referee awarded to them the race. An apology for Harvard's conduct has been sent from the alumni of that college to Columbia.

The November *Atlantic* is full of interest. It is opened by Thomas Hardy's "Two on a Tower," and we recommend any undergraduates who may be sentimentally inclined to take to heart the stern good sense of the bishop's letter in Chap. XXXV. Lieut. George S. Wilson expounds a new plan for the civilization of the American savage, the secret of which is "Give him nothing; help him in everything." Charles Dudley Warner writes of "A Ride in Spain," and the suggestive "Studies in the South" are continued. The remainder of the number contains several short poems, and other

articles, including an addition to "The House of a Merchant Prince."

That excellent and eminently practical journal, which has formerly appeared on our table as the *Boston Journal of Commerce*, comes out with a new and more appropriate title, "*Cotton, Wool, and Iron*." The circulation of this paper is already over 10,000 copies; and, with a name which now truly represents the three great industries to which it has always been devoted, it is reasonable to suppose that this circulation can be greatly increased. The wool department, which has not heretofore been a very prominent feature of the *Journal*, has been placed under new management, and now bids fair to come in for the share of attention which the importance of this industry demands. The present number contains, among other interesting matter, a long and entertaining article on "The Edison System of Isolated Lighting."

Now that good poetry is so scarce, the *College Mercury* is to be congratulated on possessing a contributor whose poetry is quite equal to Thomas Hood's. The production of this genius entitled "Mary's Ghost" is especially interesting, since it offers a remarkable example of that parallelism of thought which great minds sometimes exhibit. So closely does this poem, published as original, resemble one of the same name by the English wit, that only nine words are different in as many stanzas!

Yale is apparently making strenuous efforts for first place in the inter-collegiate games next spring. *The Record* offers a valuable silver cup as a prize in the half-mile run. — The Yale Faculty, contrary to the action of that of Harvard, has decided to allow the base-ball team to practise with professionals. The decision gives general satisfaction at Yale.

Although all the colleges with the exception of Bowdoin report "The largest Freshman class which has ever," etc., there are none where the increase has been so great as at our own Institute. '86 has brought us 203 new men, of whom 110 are regular students.

*The Lampoon* bobs serenely out of the box with quite a high color for one whose dissolution is announced. The clerical black of his outer covering has been replaced by "the best crimson ink — ten cents a bottle." The ibis has grown older, and is a trifle bald, but otherwise is in fair condition for a bird that has been worked so hard. The number is hardly up to its predecessors.

President Arthur addressed the students of Princeton College from the steps of Dr. McCosh's residence. His son enters the class of '85 this fall.

Dr. McCosh is endeavoring to interest the students of Princeton in civil-service reform. This is quite a new departure for America, although in Europe political agitations frequently have their origin in the universities.

The suit brought by Mr. Strout against seven Bowdoin students, who, he claims, hazed and severely injured his son, has just been again prosecuted in Portland. At the first trial the jury were ten for conviction and two for acquittal. By the second trial damages to the amount of two thousand five hundred dollars have been declared against the defendants. The costs will amount to something like fifteen hundred more, making the total four thousand dollars against the students.

From the Michigan *Argonaut*: "A London newspaper, in an article on American colleges, speaks of Ann Arbor, and says: 'As the name indicates this is a ladies' school, one of the largest and most famous in the country.'"

### Clippings.

A HARD case: A nut-shell.—*Lampoon*.

*The Dartmouth* claims a circulation of 1,100.

Where is the artist who can paint a toper's nose in water colors? — *Puck*.

Little Lottie to her friend: — "I have so many cares. Yesterday a little baby sister arrived, and papa is on a jury. It was only a piece of

luck that mamma was at home to take care of it." — *Yale News*.

The lah-de-dah, cigarette-smoking young man is referred to by the Cleveland *Leader* as "third-class male matter." — *Ex*.

He was an '85 man; she a blooming college widow. He wrote to his father announcing his engagement. The reply: "My dear son, accept my heartiest congratulations. I was engaged to the same Miss Bunter when I was in college, and can appreciate the fun you are having. Go it while you are young. Your loving father." — *Ex*.

The same man who christened his pig Maud, because she went into the garden, and his cat Misery, because he loved company, and his wife Crystal, because she was always on the watch, has now purchased a brace of fine hunting dogs for the sole purpose of baptizing them two for a scent, and publishing the fact in a comic almanac. — *Ex*.

The *Lampoon*, in a poem on the "Widow Butler," says:

She has two (?) eyes, so soft and brown,  
Take care!

They give a side glance and look down,  
Beware! Beware!  
Trust her not:  
She is spooning thee!

She has a record as white as snow,  
Take care!

She knows how much it is best to show,  
Beware! Beware!  
Trust her not:  
She is pooling thee!

The *Moniteur des Produits Chimiques* gives the following receipt for paper which is not destroyed by fire. Asbestos fibre of the best quality is washed in a solution of permanganate of potassa and bleached with sulphurous acid. Ninety-five of the fibre thus prepared and five per cent of wood-pulp are mixed in water saturated with glue and borax. A paste is thus obtained which renders the paper fit for the reception of ink. Writing ink which will resist the fire is made from a mixture of chloride of platinum and oil of lavender.



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The following, which we clip from the *Brunonian*, seems an advance in most college poetry :

No flaunting lily for the true æsthete,

But violet shy,

A tiny shadow of the sky,

That bows its head

Low in a grassy bed;

And hides its face

As if its beauty were almost disgrace;

True to its inmost part,

And white at heart,

Such is the emblem of the truly sweet:

Or gentian's cup

Toward heaven pointing up;

A fringed bluebell,

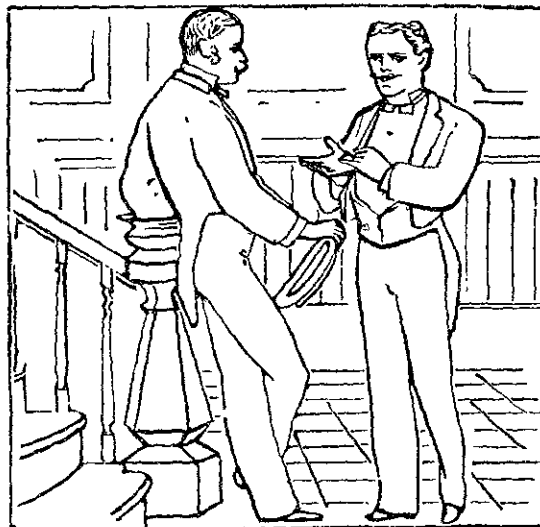
A dainty fairy cell,

Where spirits of the autumn lie asleep

Through still October days —

Of light and haze —

These are the flower-thoughts to finer taste most sweet.



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Fletcher says, "Man is his own star." If he were only his own moon, now, we should understand why many men get full so often.

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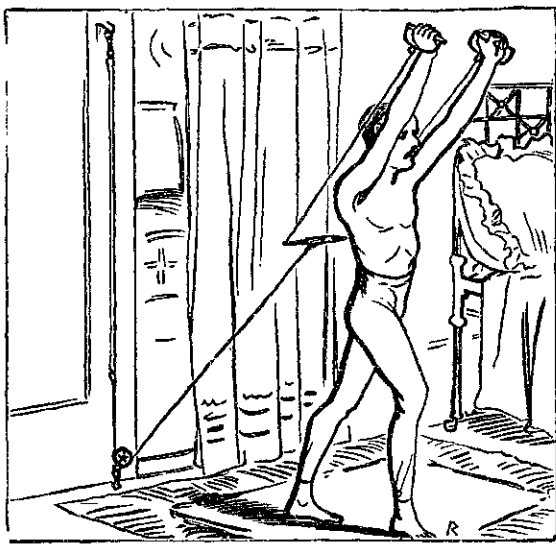
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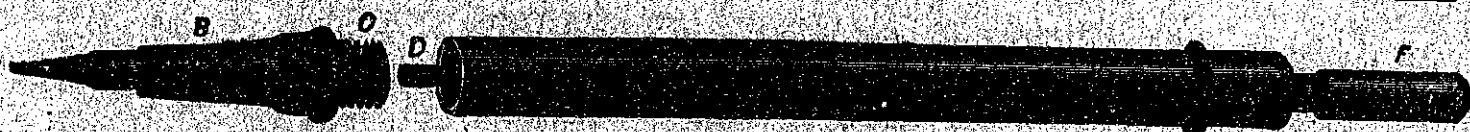
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